Listing of the Claims

This listing of claims supersedes all previous listings of claims.

1. (Previously Presented) A method for detecting a biological particle from gaseous sample, the method comprising the steps of:

a) providing a sample chamber and a first and a second electrode, the first and the second electrode and the sample chamber being so positioned that at least a part of the sample chamber is between the first and the second electrode, a distance between the first and the second electrode being at most 20 mm,

b) providing a gaseous sample in the sample chamber,

c) applying a first potential to the first electrode and a second potential to the second electrode, thus resulting in a potential difference and an electric field between the first and second electrode, to assist electrostatic collection, in the sample chamber, of a biological particle from the gaseous sample,

d) contacting the collected biological particle with a first liquid reagent, thus obtaining the reaction mixture,

e) exposing said reaction mixture to an alternating electric field in said sample chamber, said alternating electric field having a sufficient amplitude so as to enable extraction of biological material from the biological particle,

f) performing nucleic acid amplification of a target nucleic acid sequence, and

g) measuring the presence of the amplified target nucleic acid sequence and/or products resulting from amplification of the target nucleic acid sequence.

2. (Previously Presented) The method according to claim 1 wherein the first and the second electrode are positioned at opposing sides of the sample chamber.

3. (Previously Presented) The method according claim 1, wherein the first liquid reagent comprises one or more reagents required to perform a nucleic acid amplification.

4. (Previously Presented) The method according to claim 1, wherein the first liquid reagent comprises one or more reagents selected form the group consisting of a primer, a triphosphate nucleotide and a polymerase.

5. (Currently Amended) The method according to claim 1, wherein the first liquid reagent further comprises a 5'-3'exonuclease degradable, oligo-nucleic acid probe, the degradation of said oligo-nucleic acid probe resulting in release of a redox active component.

6. (Previously Presented) The method according to claim 5, wherein the redox active component is a metallocene.

7. (Previously Presented) The method according to claim 1, wherein the nucleic acid amplification of step f) is performed using an amplification technique selected from the group consisting of Polymerase Chain Reaction techniques (PCR), Strand Displacement Amplification (SDA), Ligation-Rolling Circle Amplification (L-RCA) and their combinations thereof.

8. (Previously Presented) The method according to claim 7, wherein the nucleic acid amplification of step f) is PCR.

9. (Previously Presented) The method according to claim 8, wherein the nucleic acid amplification of step f) is nested PCR.

10. (Previously Presented) The method according to claim 1, wherein the measurement of step g) comprises a voltammetric measurement.

11. (Previously Presented) The method according to claim 10, wherein the voltammetric measurement is performed using differential pulsed voltammetry or other methods for reference signal subtraction to increase the signal to noise ratio.

12. (Previously Presented) The method according to claim 10, wherein the voltammetric measurement is performed using detection electrodes positioned in the sample chamber.

13. (Previously Presented) A chip for detecting a biological particle from a gaseous sample, the chip comprising:

- a sample chamber with a first opening in fluid connection with the surrounding air and a second opening to form a fluid connection with a device, the sample chamber comprising a gaseous sample,
- a first and a second electrode positioned at opposing sides of the sample chamber,
- a heating electrode,
- a temperature sensing element, and
- a detection electrode.

14. (Previously Presented) A device for detecting a biological particle from a gaseous sample, the device comprising:

- a chip site where a chip is to be located in order to be functionally associated with the device,
- an electrical interface between the device and the chip for applying an alternating electric field between a first and a second electrode of the chip wherein the first and a second electrode are separated by a distance being at the most 20 mm, and
- a programmable unit comprising a software that effects that the device performs the following:
  - providing a gaseous sample in the sample chamber,
  -applying a first potential to the first electrode and a second potential to the second electrode, thus resulting in a potential difference and an electric field between the first and second electrode, to assist electrostatic collection, in the sample chamber, of a biological particle in the gaseous sample,
  - contacting the collected biological particle with a first liquid reagent,
  - exposing a reaction mixture to an alternating electric field in said sample chamber, said alternating electric field having a sufficient amplitude to enable extraction of biological material,
  - performing nucleic acid amplification of a target nucleic acid sequence, and

- measuring the presence of the amplified target nucleic acid sequence and/or measuring products resulting from amplification of the target nucleic acid sequence.

15. (Currently Amended) A system for detecting a biological particle, the system comprising a chip ~~according to claim 13~~ for detecting a biological particle from a gaseous sample, the chip comprising:

- a sample chamber with a first opening in fluid connection with the surrounding air and a second opening to form a fluid connection with a device, the sample chamber comprising a gaseous sample,
- a first and a second electrode positioned at opposing sides of the sample chamber,
- a heating electrode,
- a temperature sensing element, and
- a detection electrode;

wherein the chip is functionally associated with a device according to claim 14.

16. (Previously Presented) The method according to claim 6, wherein said metallocene is ferrocene.

17. (Previously Presented) The method according to claim 1, further comprising inferring that the biological particle has been detected in the sample if at least the copy of amplified target is present and/or if at least one product resulting from amplification of the target nucleic acid is present.

18. (Previously Presented) The method of claim 9, wherein said nested PCR is single-tube nested PCR.